MOOSE

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2012 - JCR Evaluation Form

SPECIES: Moose   PERIOD: 6/1/2012 - 5/31/2013

HERD: MO313 - BIGHORN

HUNT AREAS: 1, 34, 42   PREPARED BY: TIM THOMAS

	2007 - 2011 Average	**2012**	**2013 Proposed**
Population:	486	452	450
Harvest:	69	68	72
Hunters:	80	75	80
Hunter Success:	86%	91%	90%
Active Licenses:	80	75	80
Active License Percent:	86%	91%	90%
Recreation Days:	492	527	500
Days Per Animal:	7.1	7.8	6.9
Males per 100 Females	108	68	
Juveniles per 100 Females	52	28	

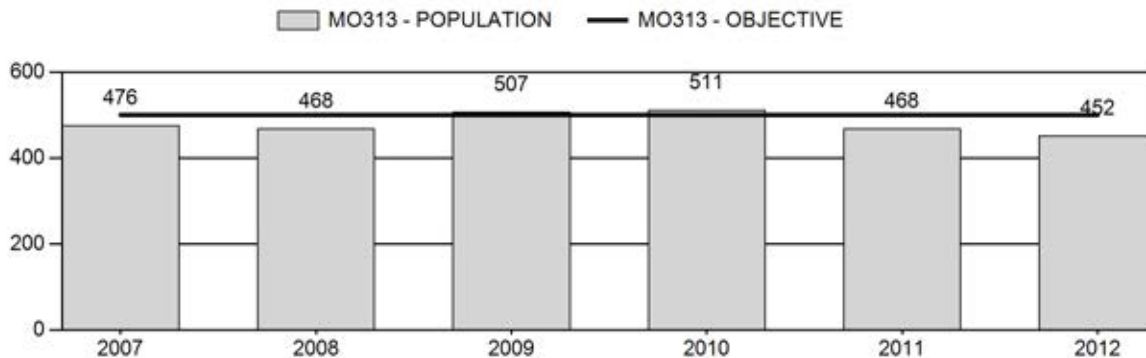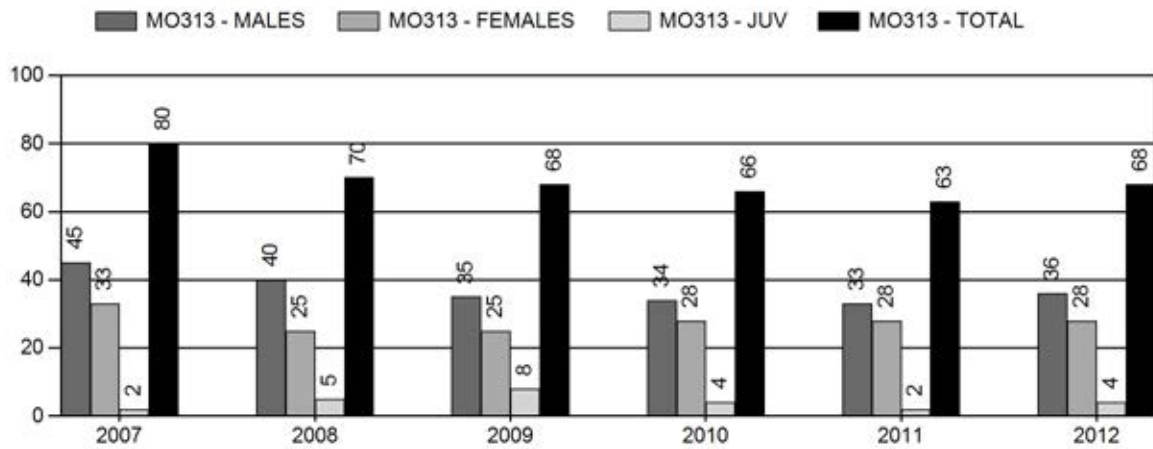|	
Population Objective:	500
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-9.6%
Number of years population has been + or - objective in recent trend:	5
Model Date:	04/19/2012

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

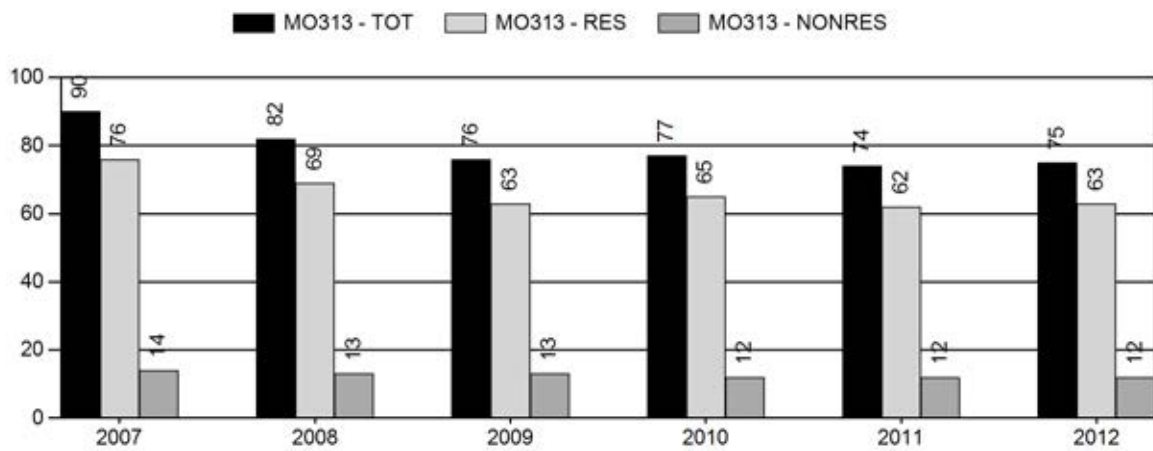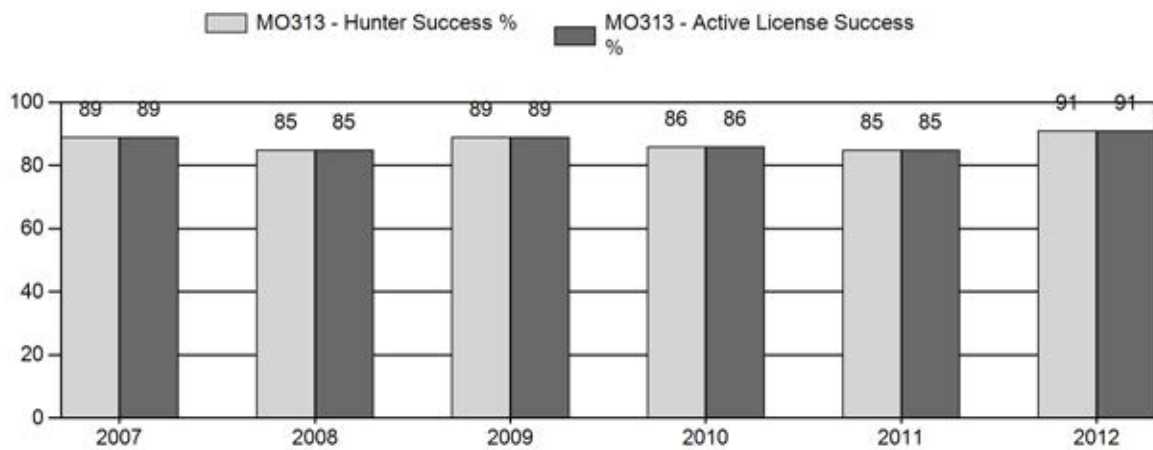|	**JCR Year**	**Proposed**
Females ≥ 1 year old:	13%	14%
Males ≥ 1 year old:	19%	20%
Juveniles (< 1 year old):	4%	3%
Total:	13%	14%
Proposed change in post-season population:	-4%	-2%

Population Size - Postseason

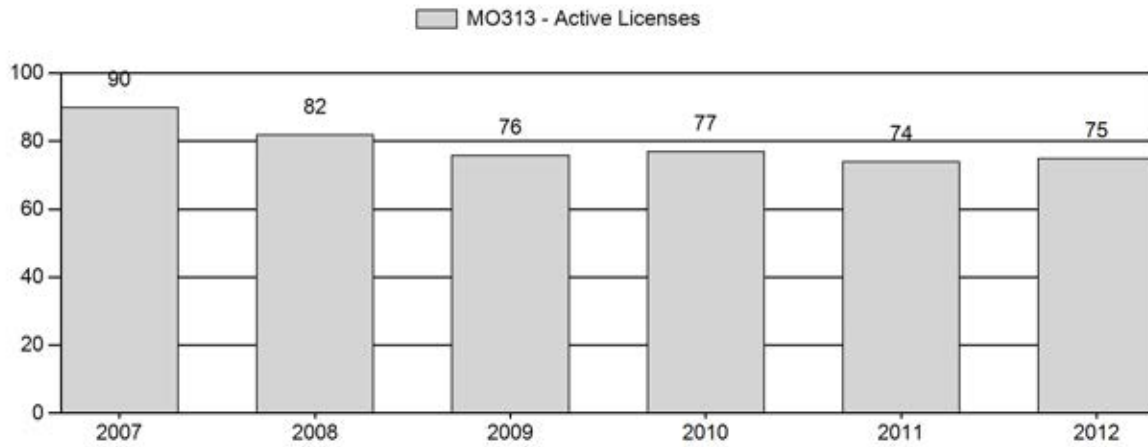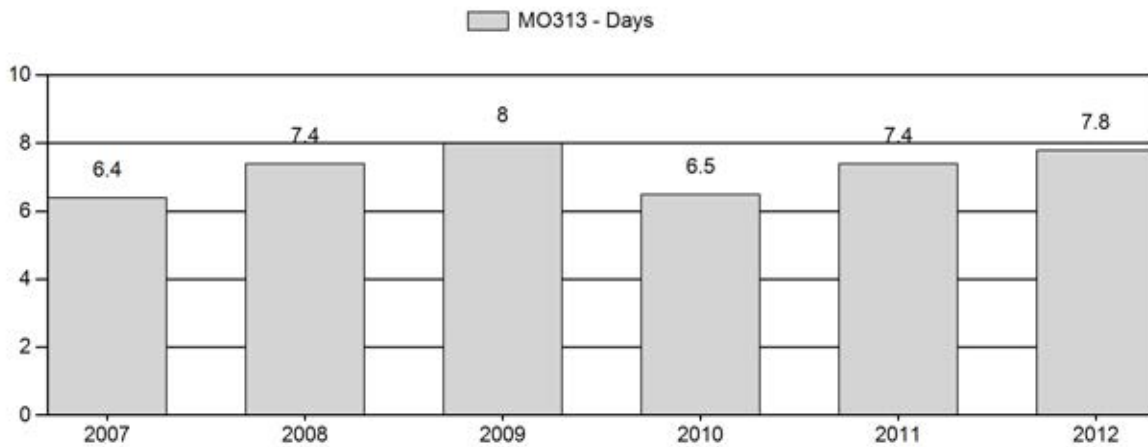MO313 - POPULATION — MO313 - OBJECTIVE

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Harvest

Legend: MO313 - MALES, MO313 - FEMALES, MO313 - JUV, MO313 - TOTAL

	2007	2008	2009	2010	2011	2012
MALES	45	40	35	34	33	36
FEMALES	33	25	25	28	28	28
JUV	2	5	8	4	2	4
TOTAL	80	70	68	66	63	68

Number of Hunters

Legend: MO313 - TOT, MO313 - RES, MO313 - NONRES

	2007	2008	2009	2010	2011	2012
TOT	90	82	76	77	74	75
RES	76	69	63	65	62	63
NONRES	14	13	13	12	12	12

Harvest Success

Legend: MO313 - Hunter Success %, MO313 - Active License Success %

	2007	2008	2009	2010	2011	2012
Hunter Success %	89	85	89	86	85	91
Active License Success %	89	85	89	86	85	91

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Active Licenses

MO313 - Active Licenses

Chart data (Active Licenses):
- 2007: 90
- 2008: 82
- 2009: 76
- 2010: 77
- 2011: 74
- 2012: 75

Days Per Animal Harvested

MO313 - Days

Chart data (Days Per Animal Harvested):
- 2007: 6.4
- 2008: 7.4
- 2009: 8
- 2010: 6.5
- 2011: 7.4
- 2012: 7.8

Preseason Animals per 100 Females

MO313 - Males   MO313 - Juveniles

Chart data (Preseason Animals per 100 Females):
- 2007: Males 65, Juveniles 47
- 2008: Males 86, Juveniles 31
- 2009: Males 54, Juveniles 49
- 2010: Males 37, Juveniles 49
- 2011: Males 49, Juveniles 31
- 2012: Males 67, Juveniles 47

2007 - 2012 Preseason Classification Summary

for Moose Herd MO313 - BIGHORN

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	562	3	19	22	31%	34	47%	16	22%	72	408	9	56	65	± 21	47	± 17	29
2008	545	3	27	30	39%	35	46%	11	14%	76	460	9	77	86	± 0	31	± 0	17
2009	582	2	18	20	27%	37	49%	18	24%	75	382	5	49	54	± 0	49	± 0	32
2010	584	4	11	15	20%	41	54%	20	26%	76	353	10	27	37	± 0	49	± 0	36
2011	538	2	17	19	27%	39	56%	12	17%	70	331	5	44	49	± 0	31	± 0	21
2012	529	1	9	10	31%	15	47%	7	22%	32	0	7	60	67	± 0	47	± 0	28

2013 HUNTING SEASONS
BIGHORN MOOSE HERD (MO313)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	Limitations
1	1	Oct. 1	Oct. 31	20	Limited quota licenses; any moose, except cow moose with calf at side
	4	Oct. 1	Oct. 31	20	Limited quota licenses; antlerless moose, except cow moose with calf at side
34	1	Oct. 1	Oct. 31	10	Limited quota licenses; any moose, except cow moose with calf at side
	4	Oct. 1	Oct. 31	25	Limited quota licenses; antlerless moose, except cow moose with calf at side
42	1	Oct. 1	Oct. 31	5	Limited quota licenses; any moose, except cow moose with calf at side
Archery		Sep. 15	Sep. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
1		No change
34		No change
42		No change
Herd Unit Total		**No Change**

Management Evaluation
Current Postseason Population Management Objective: 500
Management Strategy: Special
2012 Postseason Population Estimate: ~ 450
2013 Proposed Postseason Population Estimate: ~ 450

Herd Unit Issues

The management objective for the Bighorn Moose Herd Unit is a post-season population objective of 500 moose, with distribution of approximately 350 in Hunt Area 1, 70 moose in Hunt Area 34, and 80 moose in Hunt Areas 42 and 43 (Hunt Area 42 starting in 2013). The management strategy for all moose herds is special management. The objective and management strategy were last revised in 1996.

Weather

The spring and summer of 2012 was warm and dry, resulting in drought conditions throughout the region. The winter of 2012-13 was generally mild and open until late January, when several winter storms dropped snow about weekly during February, and again in April. Moose appear to be sensitive to warmer temperatures, showing signs of increased metabolic rates or heat stress at about 23° F during winter months and 57° F during summer months. Recent research in Massachusetts suggest moose move to thermal cover to avoid heat stress. This can alter feeding and movement patterns.

Habitat

We do not have an established habitat transect in this herd unit. Range personnel with the Bighorn National Forest have collected willow transect information at various locations on the Bighorn Mountains, the primary range for moose in this herd unit. In general, taller willow species seem to be decreasing and shorter willow species seem to be maintaining or increasing. We believe taller willow species tend to be more desired browse species for big game such as moose. As such, there may be a decline in preferred forage over time. Some habitat is relatively linear, such as on the west side in Hunt Area 42, limiting moose distribution.

Field Data

Each year moose are classified in Hunt Areas 1 and 34. In recent years, these surveys were conducted using a Bell 206B JetRanger III. Area 1 is generally surveyed in mid-late August and Area 34 is surveyed during late November – mid-January. Survey results can vary significantly between years, making interpretation of data difficult at best (Fig.1).
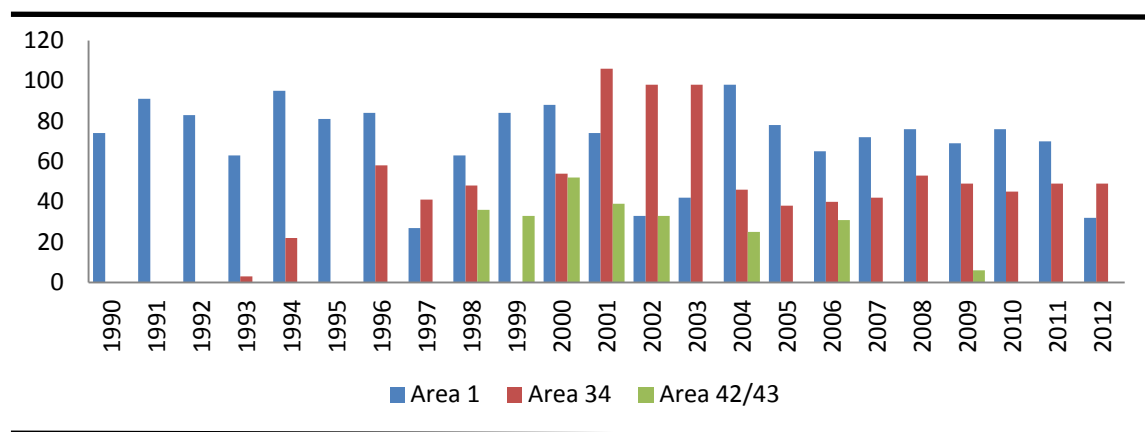

Figure 1. Moose classification/trend counts in Bighorn Herd Unit 1990 – 2012. Area 1 is surveyed in August of each year. Area 34 is surveyed in later November – January of each year. Areas 42 and 43 were surveyed during later summer.

During 2012, we classified only 32 moose in Area 1, the lowest count since 1997 (n=27). The previous 5 years, we classified an average of 72 moose, so we are confident this is simply a bad sample point. We observed 67 bulls and 47 calves per 100 cows (Fig. 2). In Area 34, we classified 49 moose, similar to recent years (range = 42 – 53). We observed 68 bulls and 28 calves 100 cows.

Teeth were collected from hunter harvested moose, generally through voluntary submission by successful hunters. Median age of males harvested in 2012 was 4 years old (mean = 5, n = 24), at the minimum desired threshold (Fig. 2). Forty four percent of the harvested males were ≥ 5 years old, slightly above the minimum desired level of 40% (Fig. 4). These indices suggest we may be harvesting more males than desired in this herd unit. If these indices continue to decline in 2013, we should consider reducing Type 1 licenses for the 2014 season.
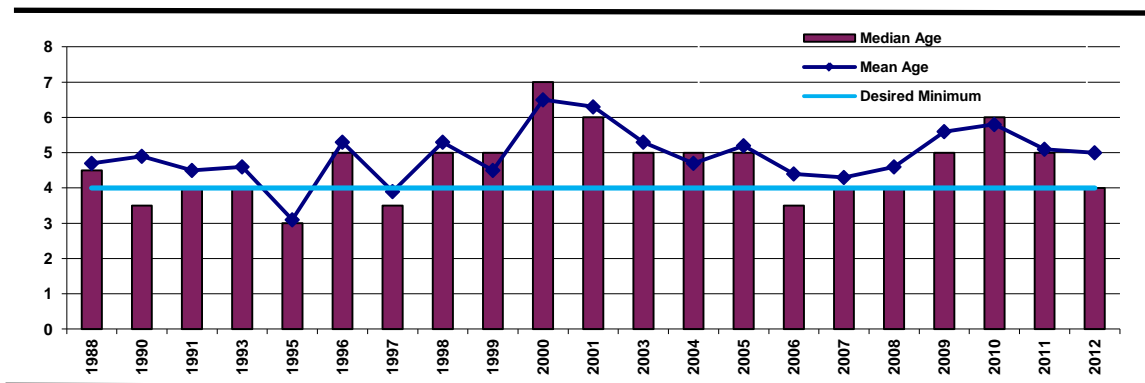

Figure 2. Median and mean age of harvested bull moose in Bighorn Herd Unit. Teeth aged by cementum analyses. Moose ≥ 1 year old included in analysis.
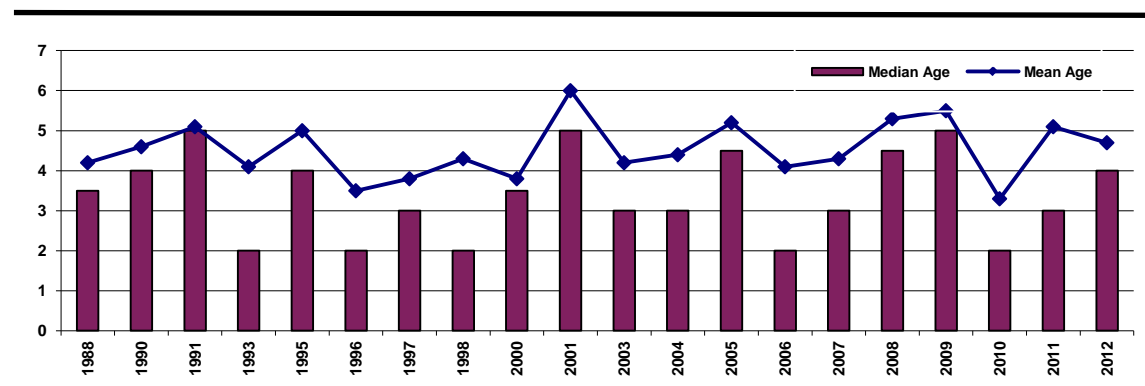

Figure 3. Median and mean age of harvested cow moose in Bighorn Herd Unit. Teeth aged by cementum analyses. Moose ≥ 1 year old included in analysis. There is no desired minimum threshold established for cow moose.
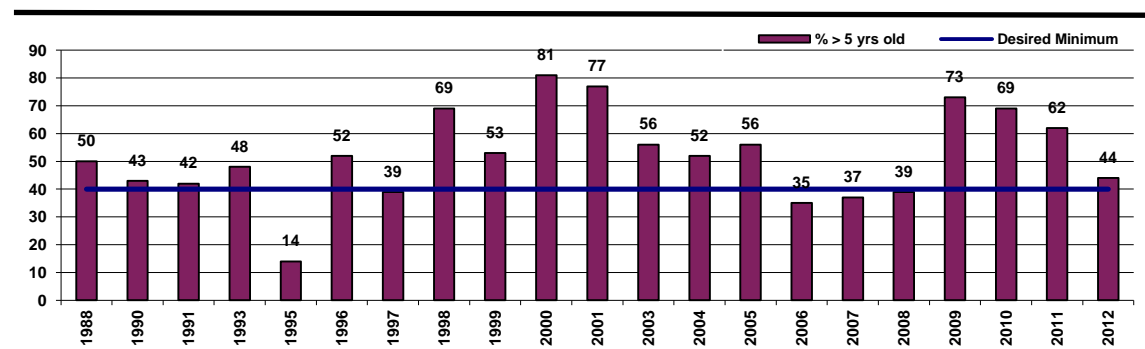

Figure 4. Percentage of harvested bull moose ≥ 5 years old by year.

Harvest Data

Hunters harvested an estimated 68 moose in 2012, similar to the past 5 years. Hunter success was 91% and effort, as measured by days hunted per moose harvested, was 7.8 days/harvest. Most hunters checked in the field seemed satisfied with their hunting experience in this herd unit.

Since moose licenses are often a once-in-a-lifetime opportunity, especially in this herd unit, we try to maintain a sufficient population to assure high (80%+) success rates for license holders. Effort can vary between years for no discernible reason. Unless there is a significant change in reported effort, it is difficult to use this metric for management decisions.

Population

We have not developed a spreadsheet model for moose at this time. Population estimates for this herd unit are based on classification counts, corrected for an estimated sightability bias (Fig. 1). The correction factors are based on the observer's perceived idea of survey conditions and results, and have not been validated with independent sightability studies. While the estimated correction factor has not been validated, we do obtain a known minimum population from classification surveys.

We believe this moose population to be slightly below the post-season objective at this time, at an estimate 450 moose. We believe the population to be relatively stable or trending slightly downward.

Management Summary

Moose licenses are by limited draw in all hunt areas. The Bighorn Herd Unit is very popular based on the number of applications for licenses available. The regular hunting season runs October 1 – 31 in all hunt areas, with an archery pre-season from September 15 – 30. Archers often harvest up to 50% of the bulls harvested in any given year. Most moose hunting in this herd unit is on U.S. Forest Service lands, with good access for hunters. Snow can limit access into some areas as the season progresses.

We estimate a harvest of 70-74 moose in 2013, similar to recent years. This should keep the population near the current level. Wyoming Governor's Complimentary moose licenses (n=5) are valid in Hunt Area 1, where 1-2 of these licenses are used most years.

There herd unit provides quality wildlife viewing opportunities, with moose visible from U.S. Highways 14 and 14A, as well as main forest service roads, throughout the spring

Habitat, especially riparian and aspen communities, remain a concern on the Bighorn Mountains. We will continue to work with the Bighorn National Forest to address these concerns.

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Moose (M313) -- Bighorn
HA 1, 34, 42, 43
Revised 8/1994